Emily Taylor Casleton

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Education

Ph.D. Statistics
Iowa State University, December 2014
Dissertation: A local structure graph model for network analysis
Advisors: Mark Kaiser and Dan Nordman

M.S. Statistics
West Virginia University, 2006
Problem Report: Spike Analysis, Stationary, and the Hurst Exponent

B.A. Mathematics and Political Science
Washington & Jefferson College, 2003

Research & Collaborative Experience

Postdoctoral Researcher
Los Alamos National Laboratory
November 2014–present

- Model reliability of nodes within a large computing cluster

- Address issues related to data storage in exa-scale computing

Consultant
Iowa State University, Department of Statistics, Ames, IA
January 2014–May 2014

- Member of the Agriculture Experiment Station consulting group

- Provide statistical consulting for faculty and researchers in the Ag College

Statistical Sciences Group Intern
Los Alamos National Laboratory, Department of Energy, Los Alamos, NM
Summer research visits 2012, 2013

- Developed a Bayesian methodology for performing generalized state estimation of electric power grid resulting in a posterior distribution of the state

- Built a Gaussian Process model to support estimation of output from non-linear power flow equations that are solved via a simulator, which is necessary for larger networks

Research Assistant
Iowa State University, Department of Statistics, Ames, IA
Funded through Sandia National Laboratory
August 2011–December 2013

Developed a novel probability model for network analysis through specification of local structure and expansion of pairwise-only dependence to include cliques of size three

Utilized a conditional specification to model and interpret network topologies

Implemented and adapted various estimation techniques to developed model

Intern Statistician
National Energy Technology Laboratory, Department of Energy, Morgantown, WV
May 2005–May 2008

Provided statistical analysis to team of fluidization researchers

Designed experiments to be performed on a circulating fluidized bed test facility

Applied non-standard statistical techniques, such as chaos theory, for identification of operational regimes from output of a vector probe

Teaching Experience

Instructor
Iowa State University, Department of Statistics, Ames, IA
Fall 2009–Spring 2011

Led lecture section of a coordinated, general education statistics course

Responsible for development of lectures, course notes, and exams

Adjunct Faculty
Washington & Jefferson College, Mathematics Department, Washington, PA
Spring 2008–Summer 2009

Taught an introductory probability and statistics course

Responsible for the development of class syllabus and schedule, lectures, assignments, course notes, and exams

Lecturer
Department of Statistics, West Virginia University, Morgantown, WV
Fall 2006– Spring 2007

Led lecture section of introductory statistics for journalism majors

Responsible for the development of class syllabus and schedule, lectures, homework and lab assignments, course notes, and exams

Graduate Teaching Assistant
Department of Statistics, West Virginia University, Morgantown, WV
Fall 2004–Spring 2006

 Responsible for supervision of lab sessions where students practiced concepts

 Taught up to 8 sessions a week from three different introductory statistics courses

 Developed lab assignments and quizzes for the department's online course system

Scholarship

Publications

Casleton, E., M. Kaiser, D. Nordman. A Local Structure Model for Network Analysis. *Statistics and Its Interface*, under revision.

Casleton, E., A. Beyler, U. Genschel, A. Wilson. (2014) A Pilot Study Teaching Metrology in an Introductory Statistics Course. *Journal of Statistics Education*, 22:3.

Vander Wiel, S., R. Bent, **E. Casleton**, E. Lawrence. (2014) Identification of topology changes in power grids using phasor measurements. *Applied Stochastic Models in Business and Industry*.

Breault, R., **E. Casleton**, C. Guenther. (2012) Chaotic and Statistical Tests on Fiber Optic Dynamic Data Taken from the Riser Section of a Circulating Fluidized Bed. *Powder Technology*, 220, 151-163.

Conference and Seminar Presentations

Casleton, E.. March 4, 2014. The Locals Structure Graph Model. University of New Mexico, Albuquerque, NM. (*Invited*)

Casleton, E.. February 27, 2014. The Locals Structure Graph Model. University of Alaska, Fairbanks, AK. (*Invited*)

Casleton, E.. February 3, 2014. The Locals Structure Graph Model. West Virginia University, Morgantown, WV. (*Invited*)

Casleton, E., M.S. Kaiser, D.J. Nordman. August 8, 2013. An Introduction to the Local Structure Graph Model. Conference of the American Statistical Association (JSM), Montreal, QC, Canada. (*Invited*)

Vander Wiel, S. R. Bent, E. Lawrence, **E. Casleton**. June 6, 2013. Uncertainty Quantification for Networks with Power Distribution Applications. Quality and Productivity Research Conference (QPRC), Niskayuna, NY. (*Invited*)

Casleton, E., S. Vander Wiel, E. Lawrence. August 9, 2012. Statistical Analysis of State Estimation for Electric Power Grids. Talking to Ourselves, Statistical Sciences Group, Los Alamos National Lab, Los Alamos, NM.

Casleton, E., A. Borgen, U. Genschel, A. Wilson. July 30–August 4, 2011. An Argument for Teaching Metrology in Introductory Statistics Classes. Conference of the American Statistical Association (JSM), Miami Beach, FL.

Borgen, A.,**E. Casleton**, U. Genschel, A. Wilson. December 6, 2010. Strengthening Quantitative Literacy Using Case-Based Learning. Seminar for Problem-Solving Faculty Learning Community, Iowa State University, Ames, IA.

Taylor, E., C. Guenther, R. Breault. November 4–9, 2007. Characterization of Flow Conditions and Scales through Dynamical Tests of the Riser of a Circulating Fluidized Bed. American Institute of Chemical Engineers (AIChE) 2007 Annual Meeting, Salt Lake City, UT.

Poster Presentations

Casleton, E., D. Nordman, M. Kaiser. March 5, 2014. A Centered Parameterization for the Local Structure Graph Model with Higher-Order Dependence. Conference on Data Analysis (CoDA), Santa Fe, NM.

Casleton, E., M. Kaiser, D. Nordman. November 1, 2013. Tornadoes in Arkansas: A Network Analysis Approach. Iowa Chapter meeting of the American Statistical Association, Ames, IA.

Casleton, E., M. Kaiser, D. Nordman. July 28–August 2, 2012. Random Graphs with Latent Spatial Structure. Conference of the American Statistical Association (JSM), San Diego, CA.

Casleton, E., M. Kaiser, D. Nordman. February 29–March 2, 2012. Random Graphs with Latent Spatial Structure. Conference on Data Analysis (CoDA), Santa Fe, NM.

Casleton, E., A. Borgen, U. Genschel, A. Wilson. May 19–21, 2011. An Argument for Teaching Metrology in Introductory Statistics Classes. United States Conference on Teaching Statistics (USCOTS), Raleigh, NC.

Conference Proceedings

Seachman, S., P. Yue, **E. Taylor**, L. Shadle. Solids Fractions and Flow Characteristics in a CFB as Measured with a Fiber Optic Probe National Energy Technology Laboratory, US DOE. American Institute of Chemical Engineers (AIChE) 2005 Annual Meeting.

Technical Reports

Taylor E.M., C.P. Guenther , R.W. Breault. Dynamical tests on fiber optic data taken from the riser section of a circulating fluidized bed. DOE/NETL-IR-2008-045.

Manuscripts in Preparation

Casleton, E., E. Lawrence, S. Vander Wiel, R. Bent. Bayesian Analysis of State Variables using an Emulator.

Casleton, E., M. Kaiser, D. Nordman. Local Structure Graph Models with Higher-Order Dependence.

Honors, Awards, & Fellowships

Preparing Future Faculty Associate, Iowa State University, May 2013

Los Alamos Statistical Sciences Conference (LASSC) grant, February 2012, 2014

Wakonse Fellow, named by Center of Excellence in Learning and Teaching, Iowa State University, May 2011

Graduate Teaching Excellence Award, Iowa State University, May 2011

Miller Faculty Fellowship, Iowa State University, Summer 2010

Outstanding Teaching Assistant Award, West Virginia University, 2006

Clyde Shephard Atchison Prize in mathematics, Washington & Jefferson College, 2003

Gamma Sigma Alpha, National Honor Society, Washington & Jefferson College, 2003

Pi Sigma Alpha, Washington & Jefferson College, 2003

Service and Memberships

Professional
Referee, Journal of Statistics Education, 2013–present
Member, American Statistical Association, 2006–present
Member, Institute of Mathematical Statistics, 2009–present
Member, International Society for Bayesian Analysis, 2012–present

Departmental
Statistics in the Community (StatCom), member, 2009–2014
   Executive Committee, 2011–2014
      Provide pro bono statistical consulting to non-profit organizations and increases the perception of statistics through community-driven outreach

Faculty Meeting Student Representative, 2012–2013
Iowa STAT-ers, member 2009–2014
   President, 2011–2012
   Vice President, 2010–2011

Last updated: January 9, 2015